

this volume was almost half of that of the newly emerged females. When the females were starved from emergence, the corpus allatum volume of the females of different age was significantly lower than that of the fed females of the corresponding age.

TABLE I
Showing changes in the corpus allatum volume of female *Spodoptera litura* following emergence

Age of female following emergence	Volume of corpora allata in $10^6 \mu^3$ (Mean value)	
	Fed	Unfed
Newly emerged	5.51 ± 1.26	..
One day	3.90 ± 0.53	3.46 ± 0.46
Two day	3.30 ± 0.51	2.96 ± 0.54
Three day	2.75 ± 0.31	2.63 ± 0.59
Four day	2.63 ± 0.43	2.42 ± 0.14

The dimorphism in the corpus allatum volume of the newly emerged adults suggests that the gland of the newly emerged females have more cells and higher quantity of secretory material both in extra- and intracellular spaces of the gland. The subsequent decrease in the volume of the corpus allatum of fed females following emergence indicates gradual retardation in the secretory activity of the gland. Further, starvation following emergence markedly reduces the activity of the corpus allatum.

Anatomical observations of the ovary of *S. litura* showed that in the newly emerged females the anterior one-third of the ovarioles had immature eggs with still large nurse cells. Further, the commencement of oviposition of eggs in *S. litura* occurs after 60 to 70 hours following emergence. Therefore, the large size of the corpora allata of the newly emerged females of *S. litura* is most likely related with the synthesis and release of the secretory material for the completion of the maturation of the growing oocytes.

We are indebted to Professor S. M. Alam, Head of the Department, for providing facilities to work.

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ON THE OCCURRENCE OF TWO NEW PARASITIC NEMATODES, *ECHINOCEPHALUS SPINOSISSIMUS* (LINSTOW, 1905) AND *E. UNCINATUS* IN THE EAGLE RAY, *AETOBATIS NARINARI* (EUPHRASAN) FROM BAY OF BENGAL

IN the course of a survey of the parasites of commercially important elasmobranchs, a careful examination of the guts, sampled on two different occasions, yielded specimens of two species of nematodes. These nematodes were recovered from the intestines of *Aetobatis narinari* (Euphrasan), a common eagle ray of the region. The specimens were assigned to the genus *Echinocephalus* because of the presence of the generic characters such as the head bulb with transverse rows of hooks and the neck glands¹. Subsequently they were identified as *Echinocephalus spinosissimus* (Linstow, 1905) and *E. uncinatus* (Molin, 1858). The specimens have been deposited in the Marine Biological Station Reference Museum collection.

As these parasites were collected from a hitherto unreported host and since *E. spinosissimus* has not so far been reported from Indian waters, the present communication adds further information and a brief description.

Echinocephalus spinosissimus (Linstow, 1905)
Material: Three males, 14 mm; 15 mm and 16.5 mm in length collected on October 1, 1971.

Host and Locality : *Aetobatis narinari* (Euphrasan), entire fish weighing 30 kg. Bay of Bengal, Porto Novo (11° 29' N 79° 49' E).

Location : Inner wall of the intestine.

Three specimens ranging from 0.83 to 1.03 mm in width were collected from the intestine of the host. Body linear, striated with six terminal lips. Head bulbs well developed with 27 rows of hooks. Four thin neck glands, and eight pairs of minute papillae with a well-developed proximal pair present on sides of body.

Echinocephalus uncinatus (Molin, 1858)

Material : One male, 13 mm in length collected on December 10, 1971.

Host and Locality : *Aetobatis narinari* (Euphrasan). 24 kg in weight; Bay of Bengal, Porto Novo.

The nematode was found attached to the inner wall of the stomach, coiled up in an ovoid cyst. Body smooth with no trace of annulations and measured 0.5 mm in width; head bulb with 6 transverse rows of hooks. Neck glands straight and devoid of swellings.

E. spinosissimus (Linstow, 1905) has so far been reported only from Ceylon waters^{2,3}. Molin² first described the species from *Trygon* spp. under the name *E. uncinatus* and later Linstow³ reported the occurrence of this species from *Myliobatis aquila* and *Trygon* spp., but under the name *Cheirocenthus spinosissimus*. This species has not so far been reported from Indian waters.

E. uncinatus has been reported to occur in *Trygon* and *Myliobatis*^{2,6,5} in gastropods⁶ and in Sciaenid fishes⁷, in Indian waters. The present records its occurrence from a new host, viz., *Aetobatis narinari* which probably forages on gastropods. In this context it may be relevant to refer to Anantaraman's⁶ report on the occurrence of *E. uncinatus* in marine gastropods. Possibly the marine gastropods serve as the intermediate hosts.

We are thankful to Dr. Leonard, Eszymont of Department of Ichthyology, Agricultural University College, Szczecin, Poland, for his keen interest.

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GIANT CELLS FORMATION IN THE TESTES OF HOUSE SPARROW *PASSER DOMESTICUS* (LINN.) BY COBALT-60 EXTERNAL IRRADIATION

It has been observed that irradiation causes the formation of giant cells in the testes of mammal¹⁻³. As there is paucity of such information in birds, the present investigation is to study the effect of Cobalt-60 irradiation on the testes of the House Sparrow *Passer domesticus*. The whole body of these birds was exposed to external irradiation of Cobalt-60 at varying doses of 475 r, 712 r and 950 r at the rate of 100 r/h from a distance of 1 foot and autopsied on days 1, 2, 3, 7 and 15. The testes were fixed in Bouin's fluid, sectioned at 5 μ thickness and stained with Ehrlich's haematoxyline and PAS for histological observations.

The giant cells could not be observed after 475 r dose, but with the increase in the dose, the cells began to cluster and at 950 r many bi- and multinucleated giant cells were located. The clustering phenomenon appeared to start when the testes were irradiated by 712 r and autopsied on 3rd day, when many cells began to coalesce and formed binucleated or multinucleated giant cells having a common cytoplasmic pool (Fig. 1).

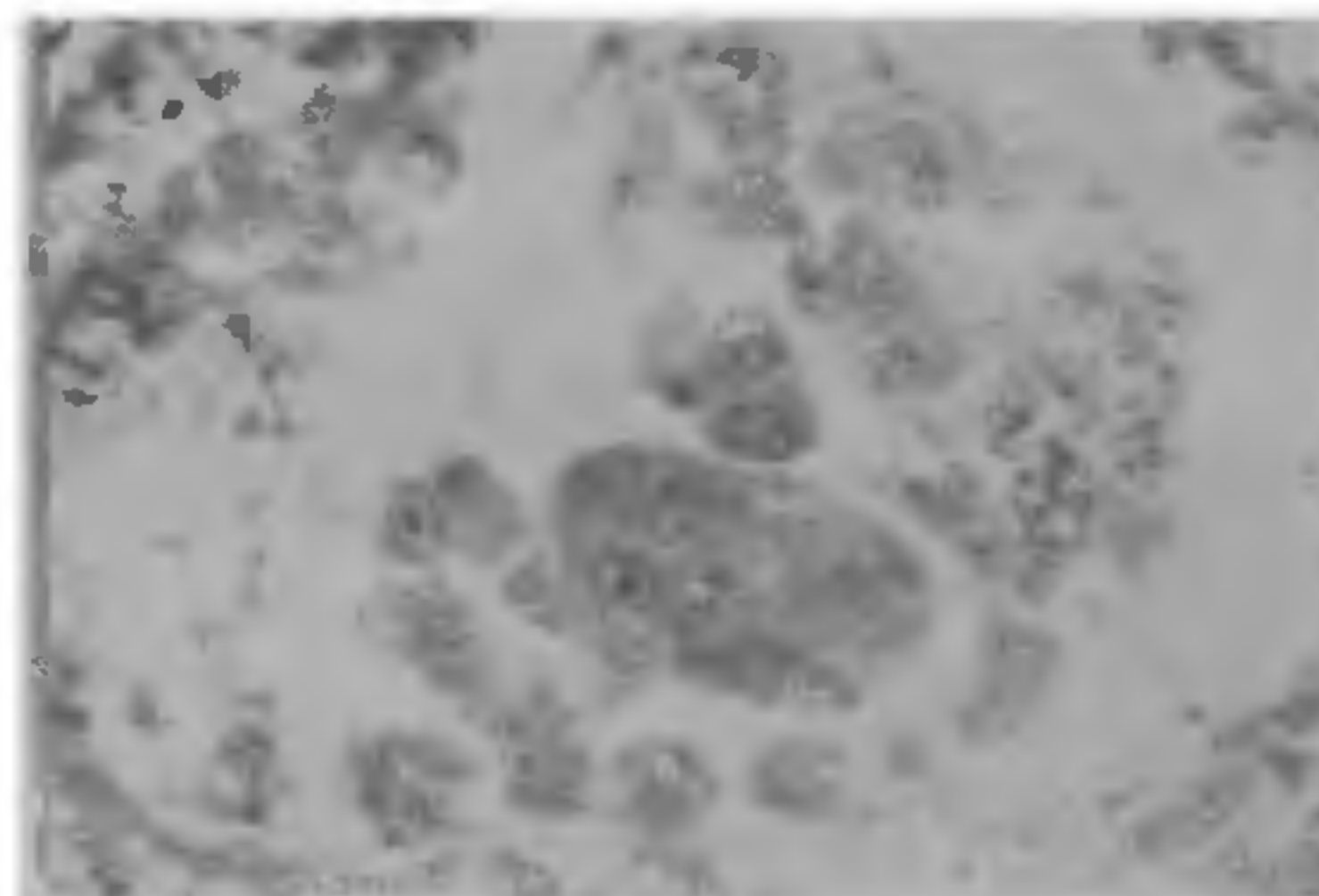


FIG. 1. Seminiferous tubule of the testes of male house sparrow *Passer domesticus* showing multinucleated giant cell, 10 \times 70.

No hypertypic giant cells could be seen as reported in mammals by other workers^{4,5}. Most of the multinucleated giant cells were derived from the spermatogonia.